Bill of Material Optimization: Case of a Packaging Company

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Abstract

Complexity in supply chain arising due to large number of products and raw materials is a challenge faced by many industries particularly those in the FMCG sector. The study is carried out in multinational packaging company which is chief supplier of tubing and packaging to many FMCG, cosmetics, dental care and pharmaceutical companies. Company is facing complexity in supply chain and at shop floor because of numerous raw materials resulting in increased costs and material handling. Most of the end products are having multiple Bill of Material due to interchangeable and substitutable raw materials available. Most of these raw materials are common with multiple end products. This is resulting in a complex challenge for supply chain manager and production manager to identify which BOM to use for production process. Currently the practice followed is to use whichever material is available at shop floor. This practice even though, allowing the company a flexibility to meet unexpected demand is resulting in increased overall costs and material handling as well as increased inventory levels. After thoroughly understanding the supply chain structure and production process of the company a methodology is proposed to identify critical raw materials causing the complexity in the system using complexity indices and then to eliminate them by applying Multi Attribute decision Making Model (MADM) to find superior materials over set of interchangeable materials.

Keywords: Bill of Materials, Standardization, Minimization, Complexity reduction, TOPSIS, AHP, MADM, Raw Materials, BOM optimization, Variety Reduction